Rosen Aviation DISPLAYS

17" LCD DISPLAY

SLIMLINE

BASE PART NUMBER

1700

Rosen Aviation DISPLAYS

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1700 TECHNICAL MANUAL

Document # 9000677 Rev C

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Introduction and Monitor Overview

Welcome to the *1700 Technical Manual* for the 17" Slimline LCD monitor. This manual provides an overview of monitor details including:

- Pinouts
- Installation
- Operation
- Troubleshooting
- Specifications

The 1700 base model includes the following features:

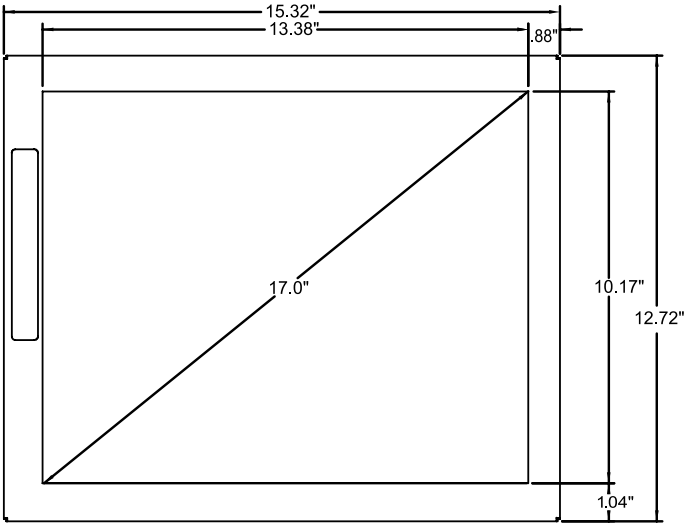
- 17" diagonal viewing area
- NTSC/PAL/SECAM (Composite video)
- Analog RGB (Computer video)
- 1280 x 1024 screen resolution (SXGA)
- On Screen Display (OSD) functions
- Status LED
- Configurable Picture in Picture (PIP)
- 28 volt power supply
- Front switch panel

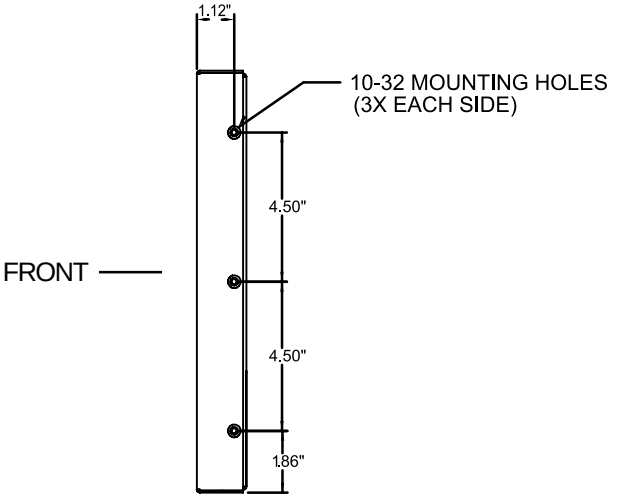
The 1700 base model accommodates the following optional controllers (sold separately):

- IR remote control
- External 7-button controller

Monitor Diagram

Outline Dimensions





Pinouts

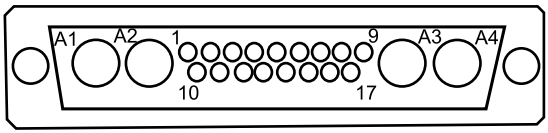
Pinout Document Number 9000493

Main Interface Signal

The input connector on this monitor is a 21W4 Male Combo D-subminiature with 17 Size 20 contacts (standard density D-sub) and four Size 8 coaxial contacts, mounting in a Size 4 D-subminiature shell.

Recommended mating connector: ITT Cannon:
P/N DCA21WA4SA197FO.

Note: Backshell of main connector is chassis ground.



MATING CONNECTOR LOADING VIEW

Pin	Monitor Signal
1	28V return
2	+28 VDC
3	IR +5VDC
4	IR signal
5	Reserved
6	RGB/Video select switch
7	Power On/Off status (output)
8	Hsync
9	Vsync
10	28V return
11	+28VDC
12	IR GND
13	Computer sync GND
14	Reserved
15	Digital GND (RGB video select return)
16	Digital GND
17	Digital GND

A1	Signal Red
A1	Shield Red return
A2	Signal Green
A2	Shield Green return
A3	Signal Blue
A3	Shield Blue return
A4	Signal Composite video
A4	Shield Composite video return

Description of Operation

Signal	Input/Output	Description
+28V, 28V Return	Input	Aircraft power supply
IR +5V, IR GND	Output	Power for optional IR receiver
IR signal	Input	IR receiver signal input
RGB/Video select switch	Input	TTL level input. Used to select which input (RGB or Composite) is displayed. Method of selection set by DIP switches. Refer to "RGB or Composite Video Option Selection" on page7" .
Status output	output	TTL level output indicates monitor is powered on when logic High (Max. current draw is 10 milliAmps)
Hsync, Vsync	Input	RGB graphics input, TTL level 470 ohm termination
Computer sync GND	Input	Reference ground for RGB sync
Digital GND, pins 15, 16, 17	Input	Common digital ground connection, connected to Computer sync GND

Signal	Input/Output	Description
A1 signal/shield	Input	Red graphics input, 1 Vpp, 75 ohm
A2 signal/shield	Input	Green graphics input, 1 Vpp, 75 ohm
A3 signal/shield	Input	Blue graphics input, 1 Vpp, 75 ohm
A4 signal/shield	Input	Composite video input, 1 Vpp, 75 ohm

External Control Interface (0300-402)

The external VIP control interface is a 9-pin standard density D-subminiature male connector.

Pin	Control Signal
1	Power On/Off
2	Source Select
3	N/C
4	Up
5	Down
6	Menu/Select
7	Left
8	Right
9	Ground (Switch Common)

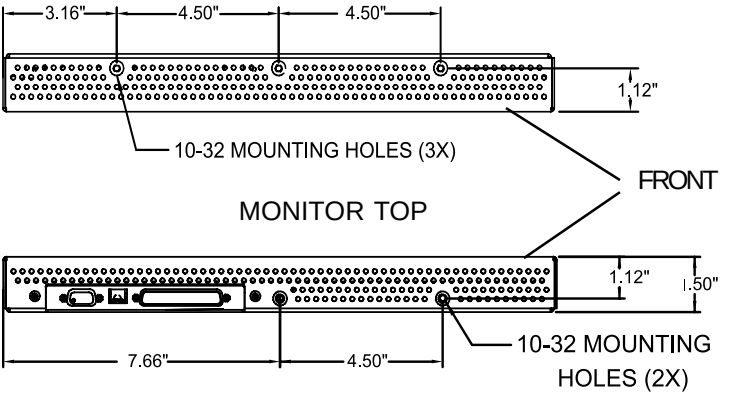
RGB or Composite Video Option Selection

The monitor can be configured to switch between RGB or Composite video using DIP switches located near the input connectors. The DIP switch selection is detected only at power on. Operation is as follows:

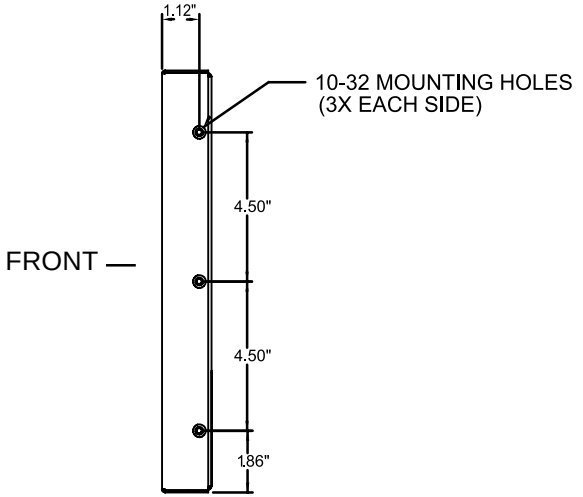
SW1	SW2	SW3	Function
On	Off	-	Constant Ground Switching. Monitor displays RGB when pin 6 of the main interface connector is held to ground. Monitor displays Composite video when pin 6 of main interface connector is held High (5 V max.).
Off	On	-	Momentary Ground Switching. Pin 6 of the main interface connector toggles display between Composite/RGB on transition to low. Monitor recalls last setting at power up.
Off	Off	-	Autodetect. When Vsync is detected, the monitor switches to RGB input. Vsync present assumes that RGB is present. **Note**: In Autodetect mode, the menu selection of video source is disabled.
On	On	-	Autodetect.
-	-	Off	Monitor defaults to Off when power (28 VDC) applied. Press power button to turn on monitor.
-	-	On	Monitor defaults to On when power (28 VDC) applied.

Installation Instructions

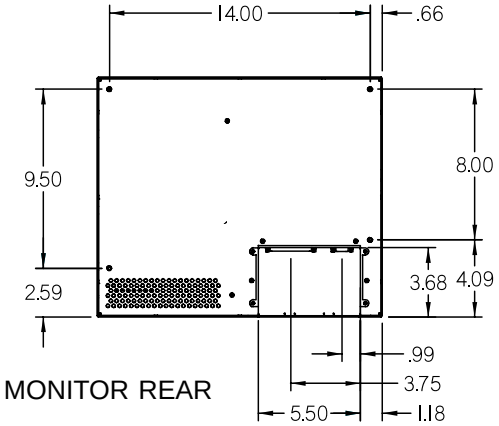
The monitor can be mounted from any combination of two sides.



MONITOR BOTTOM



MONITOR SIDES



Warning! Maximum screw penetration depth:
Top .75 inches
Bottom .75 inches
Sides .75 inches
Rear .50 inches

Natural Convection Installation

There are three display venting configurations recommended for a natural convection installation:
Option A = Top and Bottom, or
Option B = Top and Rear, or
Option C = Top, Bottom, and Rear

Design considerations:

- Display vents on selected surfaces should be unobstructed.
- Airway before display vents should be clear of obstructions for a minimum distance of 1".
- Airway before display vents should be clear of bends for a minimum distance of 1".
- Airway inlet(s) or outlet(s) should have a minimum open area of 4 sq in.

Note: Each mounting hole includes a 10-32 screw. To install the monitor, remove only the screws that will be used to install the monitor. Do not remove the 4-40 flathead screws.

Note: Application requires listed connector backshell (Positronics D37000GVL-1023.0) due to space constraints and 21WA4 combo connector.

Operation

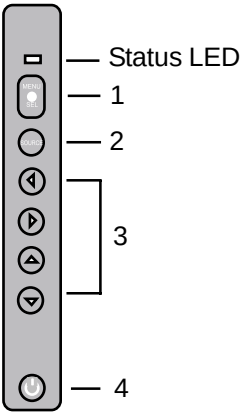
Power Status LED

The front switch panel includes a power status LED.

LED Status	Description
Green	Monitor is on.
Red	Monitor is in Standby mode.

Front Switch Panel Features

To operate the 17" LCD monitor, use the front switch panel buttons shown below. (External controllers or IR remote control options available separately.)



1	Menu/ Sel	Press to view the OSD Main menu and to select the highlighted menu option.
2	Source	Press to toggle the video source between Analog RGB and Composite video. **Note**: Only functions when DIP switch is set to Momentary Ground.
3	▼ ▲ ▶ ◀	Press to select a menu option, or to increase or decrease a value.
4	Power	Press to power the monitor on or off.

On Screen Display (OSD) Main Menu

The On Screen Display (OSD) provides a set of menus that enable you to adjust or view monitor features. Main menu selections lead to submenus with additional choices. Press the Menu button on the switch panel to see the Main menu.

Menu option	Description
Source	Select Analog RGB or Composite video signal source.
Display	Image quality control. Adjust contrast, brightness, saturation, hue in Composite video. Adjust brightness, contrast, in Analog RGB.
Video Scaling/ Position & Size Control	Image position and expansion control. Adjust image position, and aspect ratio.
Zoom	Press ▲ to zoom in and ▼ to zoom out to original image.
Smart Setting	Analog RGB only. Automatic adjustment.
PIP Config.	Analog RGB only. PIP source, size and position control.

Source Submenu

Choose “Source” from the Main menu to see the Source submenu, described below.

Menu option	Description
Analog RGB	Computer applications.
Composite video	Video applications.

Display Submenu

Choose "Display" from the Main menu to adjust monitor features, described below.

Menu option	Description
Brightness	40-step brightness control.
Contrast	40-step contrast control.
Saturation	Composite video only. Adjust color tone.
Hue	Composite video only. Adjust color tint.

Scaling/Position & Size Control Submenu

Choose "Scaling" (Composite video) or "Position & Size Control" (Analog RGB) from the Main menu to see the submenu, described below.

Menu option	Description
Position	Analog RGB only. Press ▼ ▲ ▶ ◀ to move the display image.
Fill Screen	Maximize the image size.
Fill to Aspect Ratio	Adjust image aspect ratio to 4:3.

Picture in Picture Control Submenu

Choose "PIP Control" from the Main menu only when Analog RGB video is selected to see the PIP submenu, described below.

Menu option	Description
PIP Size	Select small, medium, or large to turn on PIP and select a window size. Select PIP off to turn off PIP.
PIP Horizontal Position	Press ▶ ◀ to move the PIP window left or right.
PIP Vertical Position	Press ▼ ▲ to move the PIP window up or down.

Troubleshooting

If the monitor does not function properly, refer to the following troubleshooting table for symptoms and possible solutions before contacting Rosen field support.

Note*:* Always use an oscilloscope to verity the video signal. Always use a multimeter to verify voltages. Check actual results against the requirements described in this manual.

Problem	**Possible Solutions**
No video	• Verify that the video source is on and has a tape or DVD installed. • Verify that a signal is reaching the monitor using an oscilloscope or another monitor. • Verify that the monitor is turned on. (LED is green.) • Verify that the pinout is correct. • Verify that the video input (Analog RGB/ Composite) and video standard (NTSC/PAL/ SECAM) match your application.
Screen is black	• Verify that the monitor is receiving power. • Verify that the pinout is correct. • Verify that the video source is on and has a tape or DVD installed. • Verify all connections.
Screen is blue	• Verify that a signal is reaching the monitor using an oscilloscope or another monitor. • Verify that the pinout is correct. • Verify that the video source is on and has a tape or DVD installed.
Color is out of adjustment	Refer to the Main menu features on page 11.

Problem	**Possible Solutions**
Image flickers	• Verify that the signal cable is secure. • Verify that the vertical frame frequency is 75 Hz or less. If using the monitor with a PC in Windows, change the Display Control Panel to 60 Hz to achieve the best performance.
Image is distorted	• Verify pinouts. • Verify that a signal is reaching the monitor using an oscilloscope or another monitor. • Examine the monitor for pinched or damaged cables.

Specifications

LCD Performance	
Screen Resolution (pixels)	1280 w x 1024 h
Display Viewing Area	337.9 x 270.3mm (13.30 x 10.64 inches)
Viewing Angle	
Horizontal	±80º
Vertical	±80º
Contrast Ratio	350:1
Backlight Lamp Life (hours)	50,000
Screen Brightness	200 cd/m^2 (250 measured)
Mechanical Packaging	
Weight	8 lbs ± 5%
Power Requirements	28VDC 40W max.
Video Performance	
Video Standards	NTSC, PAL, SECAM
Graphics Standards	VGA, SVGA, XGA, SXGA (75 Hz max)
Video input	1V peak-to-peak, 75 Ohms
Operating Temperature	0ºC - 50ºC
Warranty	2yr

17” Monitor DO-160D Test Matrix

Section	Description	Category
4	Temp & Alt	A1
5	Temp variation	C
6	Humidity	A
7	Op shock & crash safety	B
8	Vibration	SB
9	Explosion Proofness	X
10	Waterproofness	X
11	Fluids Susceptibility	X
12	Sand & Dust	X
13	Fungus Resistance	X
14	Salt Spray	X
15	Magnetic Effect	Z
16	Power Input	AB
17	Voltage Spike	B
18	AF Cond Suscept – Pwr	Z
19	Induced Signal Suscept	Z
20	RF Suscept (Cond&Rad)	TTT
21	Emission of RF Energy	M
22	Lightning Induced Trans	X
23	Lightning Direct Effects	X
24	Icing	X
25	Electrostatic Discharge	A

Technical Support

For field support or to order parts, contact Rosen Products at: 888-668-4955

or visit us at: www.rosenaviation.com

Disclaimer

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